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26 October 1984

# Worldwide Report

TELECOMMUNICATIONS POLICY,  
RESEARCH AND DEVELOPMENT



FOREIGN BROADCAST INFORMATION SERVICE

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26 October 1984

WORLDWIDE REPORT  
TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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SHANGHAI TV STATIONS ADOPTS REFORM MEASURES

Shanghai JIEFANG RIBAO in Chinese 7 Apr 84 p 1

[Article by staff reporter: "Shanghai TV Station Announces Ten Reform Measures"]

[Text] Shanghai TV station announced that TV dramas will be created with a spirit of reform. In the closing ceremony of the TV drama writing conference, Associate Director of the Shanghai Radio and TV Broadcasting Bureau and Manager of Shanghai TV Station Gong Xueping [7895 1331 1627] declared 10 reform measures which received considerable response from the meeting attendees.

These 10 measures are: (1) Combine the original Shanghai Radio and TV Broadcasting Arts Group with the TV Drama Department, led by an assistant manager to strengthen the resources in creating TV dramas. (2) Erect a creativity building providing a quiet working environment for writers and editors, (3) Reduce the number of levels in script review from seven to two, (4) Have two contests each year and hold a "small scale hundred flowers award" at the TV station by the end of the year. (5) Sample periodically in order to study the feedback, to understand the responses and opinions of the viewers and to allow the viewers and the editors and directors to communication. (6) Actively plan the publication of magazines in which TV scripts and reviews will be printed to create a medium for editors, writers and readers to learn and exchange ideas. (7) Hold discussion meetings for TV play writers to improve quality. (8) Reform the present compensation system so that excellent plays can be well rewarded. (9) Implement an economic contract system for producing TV plays and expand self-determination rights so that the enthusiasm of the staff can be motivated. (10) Maintaining a base of operations in Shanghai, face the nation to further establish and expand a team of amateur writers.

Many writers enthusiastically proposed their ideas of producing TV drama, series, plays for children and serialized drama at the meeting. Furthermore, a few scripts were submitted.

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CSO: 5500/4199

CHANNEL 20 IN SHANGHAI BROADCASTING DAILY

Shanghai JIEFANG RIBAO in Chinese 7 Apr 84 p 1

[Article by staff reporter: "Beginning 9 April, Channel 20 in Shanghai Will Present Daily Programs, Morning Programs Will Start in the Third Quarter"]

[Text] Beginning next Monday (9 April), Channel 20 will broadcast daily instead of three days a week. Thus, the viewers in Shanghai can receive two sets of local programming.

Channel 20 plans to include programs such as TV education, special topics, foreign language movies, entertainment, and viewer requests. From the third quarter of 1984, Channel 20 will be on the air every morning to gradually create an atmosphere for all-day broadcasting. Based on the request of the people, the TV series "Huo Yuanjia" [7202 0337 3946] will be rerun every Sunday. Three episodes will be shown each time.

Shanghai TV Station is adjusting and recruiting editors, directors and producers for various programs. The TV news center has been completed and utilized. Three production lines are available for TV plays, capable of taping two TV plays and one short story. New entertainment programs include "Great World," "Great Stage," etc.

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OPTICAL FIBER COMMUNICATIONS IN NANJING

Nanjing XINHUA RIBAO in Chinese 13 Apr 84 p 1

[Article by Li Darong [2621 1129 1369]: "Major Achievement Scored by Nanjing in Developing Optical Fiber Communications"]

[Text] The most advanced optical fiber communications technology has already been employed in Nanjing. Some developed products in optical fiber communications have already been manufactured at related plants in Nanjing. This was the result of close collaboration and hard work of relevant departments organized by the Jiangsu Provincial and Nanjing Municipal Science Committees.

The major advantages of optical fiber include long range and high capacity. Two glass fibers are sufficient to transmit signals for thousands of telephones and dozens of televisions thousands of miles away. It is capable of handling nearly one hundred times more voice signals than electrical cables, and the range is extended by more than 12-fold.

Many achievements in optical fiber communications have been scored in Nanjing. For example, the development of a key component of optical fiber communications, an optoelectric receiver, has successfully skipped the first product development stage to directly enter the second stage. Major technical targets are close to the standards of similar products in the world. The first domestic optical cable transmission system for electrical power communications has been built. It is 1.5 km long connecting the downtown transformer station to the central dispatch office. A color television optical fiber transmission system has been successfully developed and employed by Jiangsu Television Station. It is manufactured as a fixed model product by Nanjing Cable Plant. The Broadcasting and Television Department is recommending this product to television stations nationwide. A closed-circuit optical fiber television system has been successfully developed for monitoring production, warehouses and firing targets. This product is manufactured by the Nanjing Electric Instrument Plant. Some units were also purchased and installed by user organizations. A 4.4-km optical fiber communications line has been established between the third and fourth bureaus of the city telephone company. It is capable of handling 120 telephone calls simultaneously. An optical fiber manufacturing facility was built. For the first time in China, a reinforced jacket was used to strengthen the optical fiber to meet the requirements in installation. In addition, achievements have been obtained in transmission theory, testing techniques, and development of other optical devices.

Optical fiber communication is a comprehensive advanced technology. It is difficult and involves a wide cross-section of disciplines. There are over one hundred topics to be resolved. Any one department or unit can hardly tackle this science alone. There are many universities and scientific research institutes in Nanjing that are fully equipped with testing apparatus and precision instruments. In particular, there are many qualified research personnel. The scientific committees of Jiangsu and Nanjing organized a multi-disciplinary and multi-level effort to develop optical fiber communications based on the technical characteristics and the resources in Nanjing. Since 1978, over a dozen units and more than 300 scientists and engineers have participated in the research.

The units and individuals involved worked hard to enthusiastically finish their assigned tasks. For instance, the Nanjing Glass Fiber Institute has the expertise in fabricating fibers. They overcame difficulties to develop an optical fiber which satisfies the installation requirements. The Nanjing Institute of Posts and Telecommunications was the first in China to study video communications. They contributed significantly to the application of optical fiber communications in television. The Nanjing Institute of Automation and Nanjing Institute of Solid State Devices have a number of highly qualified people. Their hard work resulted in the development of components in optical fiber communications. In addition, the Jiangsu Posts and Telecommunications Research Institute, Nanjing Telecommunications Bureau, and Jiangsu Telecommunication Cable Plant also utilized their expertise to solve relevant problems in optical fiber communications.

Expansion of optical fiber technology was already listed as one of the key items in creating new economic prospects in the second meeting of the 9th Nanjing People's Congress in early April. An electronic optical fiber group has already been set up to organize various economic, research and education departments to continue the spirit of collaboration in order to further promote the wide application of optical fibers in production and everyday life.

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FOUR-LEVEL SYSTEM FOR RADIO, TV

Shanghai XIANDAI TONGXIN [COMMUNICATIONS TODAY] in Chinese No 3, 1984 p 30

[Article by Feng Sheng [6646 3932]: "What Is the Four-level System for Radio and TV?"]

[Text] China has 118 radio broadcasting stations, 630 broadcasting transmission stations, 47 TV stations and 5,364 TV transmission stations (including relay stations). Although the radio and TV industry is developing very rapidly in China, it is still far from meeting the people's needs. In order to accelerate the development of the TV and radio industry to build a modern radio and TV network with Chinese characteristics, the broadcasting and TV departments will make important policy adjustments. This means that a fourth level organization may operate radio and TV stations to offer combined coverage. We will work hard to launch our first broadcasting satellite in 3-5 years. We will develop UHF, FM broadcasting.

What is the four-level system for radio and TV broadcasting? As we know, in the past only the central government, provinces (municipalities) and cities could operate radio broadcasting stations. The counties could only operate cable systems. Only the central government and provinces (municipalities) could establish TV stations while cities and counties could only relay programs. After the policy adjustment, in addition to the central government and provinces (municipalities), qualified cities and counties may build radio and TV stations to broadcast their own programs. This is the four-level radio and TV broadcasting system.

After the four-level radio and TV broadcasting system is implemented, radio and TV stations operated by the county, in addition to broadcasting their own programs, may relay programs from the central, provincial (municipal), and city level. A city-level radio or TV station may, in addition to broadcasting its own programs, relay programs from the central and provincial level or from the county level. Central and provincial radio and TV stations may also choose to broadcast programs produced at the city or county level, in addition to their own programming. Such a coverage is called four-level mixed coverage.

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OPTICAL FIBER IN CHINA'S COMMUNICATIONS OUTLINED

Beijing RENMINRIBAO in Chinese 2 May 84 p 5

[Article by Wei Yanan [7614 0068 0589]: "Light--the Wings of Modern Communications"]

[Text] With telephone and TV, "tail wind ears" and "thousand mile eyes" became realities. However, telephone lines are busy and television often suffers from interference. Is there a more advanced way for communications? The answer is affirmative. Not too long ago, the development of optical fiber communications components in Beijing and Tianjin showed that the new optical fiber communications technology is bringing mankind into a new era.

"Tail Wind Ears" by light: A "telephone switch board" in the communications building in Beijing Railroad Bureau is full of keys and red lights are flashing. It is automatically servicing its telephone users. According to the introduction given by the guide, it is a newly installed Chinese-made optical fiber communications device. The fantastic thing is that it is not connected to ordinary telephone lines. Instead, it is linked to a 12-km-long optical cable. It transmits optical signals, not electrical signals. The users of the line are talking with the aid of "light" rather than "electricity."

Someone asked that "What are advantages of optical communications?" The guide picked up an optical cable containing 144 optical fibers and compared it with an electrical cable of the same size. He said that "the major advantage of optical fiber communications is high signal capacity. The voice transmission rate is high. Such an optical cable can simultaneously transmit 48,384 calls, equivalent to several thousand coaxial cables."

The use of optical fiber communications can also conserve a great deal of metals as well as energy. An optical cable is made of quartz optical fibers. Replacing an electrical cable with an optical cable can save over a ton of copper and 3 to 4 tons of lead per kilometer. The amount of energy consumed in making an optical cable is only one-thousandth of that for an electric cable of the same length.

The operator lifted the earphone on the optical fiber communications device and clear voices could be heard. Due to the fact that an optical fiber is not



a conductor, it will not have electromagnetic induction. Optical fiber communication is not easily susceptible to interference and wiretapping. This characteristic is especially important in military applications.

"Thousand mile eyes" by light: A color television set with clear pictures was placed in front of the dispatcher in Beijing Subway Dispatcher's office. The TV screen clearly displayed the scene at the subway station and ticket booth. The dispatcher can immediately take emergency measures if required.

Manager Liang Dihua [2733 2769 5478] of the subway company said that "With optical cable television, we can sit here and monitor all directions. We don't have to give orders by experience and operating charts." The passenger load peaked last year on National Day. Due to proper management, there were 30 fewer trains behind schedule than usual. We created the record of operating 347 trains on the same day.

Associate Chief Engineer Li Kecheng [2621 0344 6134], who was involved in this development project, told us optical fiber video might also be expanded to industries, mines, military tests, public safety and medical monitoring. If we add voice to optical fiber video, it becomes a videophone. It will be possible to see the other party. We are no longer required to travel thousands of miles to see our relatives. We can meet them on the TV screen. The capacity of video pictures transmitted by optical fibers is very high. It is possible to simultaneously handle several dozen TV programs for the viewers to select. Furthermore, the pictures are not susceptible to external and line interference.

Origin and development: On the way to Tianjin, Associate Chairman of the Science Committee of the Ministry of Electronic Industry and Committee Member of the Chinese Academy of Sciences Luo Peilin [5012 3099 7207] talked about the history of optical fiber communications. Light was used to transmit information long ago. The ancient Chinese smoke tower is a primitive optical communications technique. However, the real optical technology was theoretically developed by a Chinese Englishman Gao Ti [7559 2251]. When semiconductor laser and low loss quartz optical fibers become available, the technology was born. In the past decade, significant progress was made and it is in a practical stage.

In Tianjing we visited the 46th Institute of the Ministry of Electronic Industry, where optical fibers are manufactured. An optical fiber is prefabricated into a foot long finger size rod by adding Ge, B and P into high-purity quartz. It is then pulled into a hair-fine fiber to become an optical fiber. An optical cable is made by adding a shield over the optical fiber bundle. Optical and electrical terminal devices are then installed on both ends of the cable to form a practical optical fiber communications device.

The responsible person at the institute said that "Our optical fiber and prefabricated rod have already approached the international standards for similar products." Optical fiber communications is a new technology and the gap between China and the rest of the world is small. China has over 30 optical fiber communication lines, over 100 km in total length. The rapid development of this industry will add wings of "light" to the modernization of communications.

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SECOND NATIONAL OPTICAL FIBER COMMUNICATIONS MEETING

Shanghai DIANZI JISHU [ELECTRONIC TECHNOLOGY] in Chinese No 2, 1984 p 31

[Article by Yang Bangxiang [2799 6721 3276]: "Second National Optical Fiber Communications Academic Conference Held"]

[Text] The Second National Optical Fiber Communications Academic Conference was held to 2-5 November 1983 in Wuhan. This meeting was jointly sponsored by the Optical Communications Committee of the Chinese Society of Communications and Communications Division of the Chinese Society of Electronics. Over 300 experts, professors and technical personnel in optical fiber communications throughout China attended the meeting. More than 130 papers were exchanged.

According to the papers and discussions at the conference, the performance of optical fibers, semiconductor lasers, and detectors continues to improve. The technology is maturing. Dedicated optical fiber systems have been employed in TV stations, industrial monitoring and data transmission. The optical fiber communications system for short wavelength secondary group local telephones has already been developed to a practical stage. Research accomplishments and experience were also exchanged in the meeting. Specific opinions and suggestions regarding the development of long distance optical fiber communications, optical fibers and cables, and optoelectric devices were presented.

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AEROSPACE INDUSTRY REPORTED ACHIEVING RESULTS

HK270838 Beijing GUANGMING RIBAO in Chinese 20 Sep 84 p 2

[Article supplied by the Propaganda Department of the Commission of Science, Technology, and Industry for National Defense: "China's Aerospace Industry Is Developing by Leaps and Bounds"]

[Text] China's experimental communications satellite, launched on 8 April, succeeded in reaching its geostationary position at 125 degrees east over the equator at 1827 hours and 57 seconds on 16 April. Instruments on the satellite were functioning well and the experiments, such as those in telecommunications and radio and TV transmissions, were conducted normally. This is another victory in China's aerospace industry and marks a new leap forward in China's space technology.

It was on 24 April 1970 that China successfully launched its first man-made earth satellite. Weighing 173 kg, the satellite operated satisfactorily in orbit, its various instruments functioned normally, and it was able to broadcast the music of "The East Is Red." After the satellite was launched, China's space calculation and control center immediately forecast accurate times for the satellite's flying above 120 cities in the world. This shows that China's newly emerged satellite calculation and control technology has, from the very beginning, scored good achievements, and is characterized by its "good performance, precise calculations, and accurate forecasts." The successful launching of China's first satellite indicated that China had made a good beginning in its space technology and it became the fifth country in the world to have the ability to manufacture and launch satellites independently.

The year 1975 was an extraordinary year in the history of the development of China's satellites. China successfully launched three satellites that year. In particular, a man-made satellite, launched on 26 November, returned to earth as scheduled for the first time after operating normally in orbit. This was a breakthrough in China's satellite technology. Since then, China has become the third country in the world to master the technology of satellite recovery.

On 20 September 1981, China for the first time successfully launched three satellites with one carrier rocket. After accurately entering orbit, various systems on the satellites functioned normally and continuously sent back

various scientific detection and experimental data to earth. The successful launching of "three satellites with one rocket" had wide repercussions in world press circles.

With the successful recovery of satellites on five occasions, China this year entered the ranks of advanced countries which have mastered the technology of manufacturing and launching synchronous communications satellites. Its communications satellite operated well in orbit and could at any time relay TV programs, carry telephone calls, and conduct other communications activities among the regions which have receiving stations or centers.

CSO: 5500/4133

SICHUAN BROADCASTING UNDERGOES ALL-ROUND DEVELOPMENT

HK241439 Chengdu Sichuan Provincial Service in Mandarin 2300 GMT 23 Sep 84

[Excerpts] Striving hard for 35 years since 1949 and undergoing an all-round development in broadcasting services since the 3d Plenary Session of the 11th CPC Central Committee, Sichuan Province has now built up its own radio, wire, and TV broadcasting networks. Now, the province has its own radio-TV propaganda network, which, with the provincial radio broadcasting station and the provincial TV broadcasting station as its centers, links up city and county broadcasting stations and relaying stations to reach all the villages and families throughout the province. As a powerful weapon for the party and the people to transmit news and verbal opinions, to carry out ideological education, and to provide cultural and entertainment programs and social services, this radio and TV broadcasting network is playing a more and more important role in the building of the two civilizations.

Nowadays, radio broadcasting stations spread all over the province. An advanced and well-equipped provincial broadcasting technical station left by the KMT upon liberation in 1949. The present provincial radio broadcasting network consists of 17 medium- and short-wave transmission stations and 9 FM transmission stations. Four city radio broadcasting stations have been built up in Chongqing, Chengdu, Zigong and Dukou. All the provincial and city radio broadcasting stations now run eight programs which put out every day 80 hours of broadcasts in Mandarin, Tibetan and other dialects. In addition, more than 30 county FM broadcasting stations are under construction. Wire broadcasting stations spread all over the rural areas in the province. In the initial post-liberation period, there were only a number of dry cell-powered radio receiving stations in the rural areas. Today, wire broadcasting networks with Chinese characteristics have been built in the rural areas. A broadcasting system with county broadcasting stations as its core and township relaying stations as its basis has taken shape, linking all the villages, production brigades, and families in the province. Qionglai, Xintang, Shifang and other county broadcasting stations were established in recent years. So far the province has 206 broadcasting bureaus, stations and relaying stations at the county level, more than 8,000 township relaying stations, 14,353 audio amplifiers, 730,000 km of relay line, and more than 10.42 million loudspeakers.

The TV broadcasting service started in the province in 1958. There were only black and white TV programs in the initial period. The Color TV broadcasting service has progressed rapidly since the color TV center was built and put into operation, and the provincial TV central station is now constantly improving its service. At present, a provincial TV broadcasting network has been completed, consisting of 10 transmission stations and relay stations and more than 900 small-sized relay stations. The Chongqing and Dukou Central TV broadcasting stations have been built. In addition, more than 50 videotape replay TV centers have been built in remote areas.

In order to solve the problems concerning radio and TV transmission and coverage, relay stations have been built on a few high mountains, including Longquan Shan, Emei Shan, Jianmen Shan, and Huaying Shan, since the 1970's and, at the same time, a number of small-sized TV relay stations have been built on (Mufo) Shan, (Maoniu) Shan, (Mengdi) Shan, (Longzhou) Shan, and other mountains since the 1970's.

The number of high-quality radio and TV programs keeps on increasing.

The circulation of SICHUAN GUANGBO DIANSHI BAO [SICHUAN RADIO AND TELEVISION BROADCASTING JOURNAL] which provides information on radio and television programs to the broad masses has reached 1.38 million copies.

The broadcasting equipment industry is prosperous. At present there are eight provincial and prefectural broadcasting equipment plants and a number of radio and TV broadcasting equipment spare part manufacturers in the province, and a system combining production, supply, and consumption has been established. There are more than 170 radio and TV service companies and repair services and several thousand town and township service centers.

The gramophone record manufacturing industry developed rapidly in the province in the mid-1970's. So far the highest annual sales volume for records is more than 8 million. Moreover, the province has also itself produced and released records for the first time in history. Since its founding last year, the Sichuan Provincial Audio and Video Product Company has produced and released 24 audio tapes to introducing literary and artistic works and for educational and tourist use.

The present number of staff members working in the broadcasting trade is more than 22,700, in contrast to 200-odd in the initial post-liberation period. And the province has now a complete and competent contingent of editors, reporters, announcers, directors, photographers, video recording technicians, photo finishing technicians, broadcasting engineers, civil engineers, maintenance technicians, personnel training officers, publishers, salesmen and management personnel.

CSO: 5500/4135

DEVELOPMENT OF SATELLITE COMMUNICATIONS REVIEWED

OW070821 Beijing in Mandarin to Southeast Asia and Southern Pacific 0900 GMT  
3 Oct 84

[Report by station reporter: "China's Satellite Communications"]

[Excerpts] Satellite communications are a modern, economical, and effective means of communication developed during the 1960's. China's international communications via international satellites began in the early 1970's. The first home-made experimental communications satellite was successfully launched last April; it marked a new stage of China's satellite communications technology.

On 8 April 1984, China launched its first experimental satellite. At 1827 [1027 GMT] on 16 April, it was successfully positioned over the equator at 125 degrees east longitude. Operation of the satellite's instruments and equipment was normal, and the projects assigned to it to test telecommunication and telecast transmissions were satisfactorily carried out. Today this satellite is still operating normally.

In the past, people in China's remote areas in Xinjiang could see only programs which had been broadcast by Beijing's Central Television station 3 or 4 days earlier.

Because of the lack of telecasting means, they had to depend on videotapes shipped by mail from Beijing. At present there is an experimental communications satellite positioned over China, and people in Urumqi can directly see the Central Television Station's programs as relayed by the satellite's ground station newly built in Urumqi, capital of the Xinjiang Uygur Autonomous Region.

One day this reporter visited the ground station in Urumqi. Even from a great distance I could see the milky white parabolic antenna with a diameter of 15 meters. In the spacious and brightly illuminated engine room, workers were working in an orderly manner. The images received from the Central Television Station via the satellite were clear and the audio quality was very good. Telephone conversations between Urumqi and Beijing were as clear as those between callers in Beijing.



In early 1972, D Standard ground stations for satellite communications were built in Beijing, our country's capital, and in Shanghai, China's biggest city. These stations, each equipped with a 10-meter diameter antenna, were used for international telephone, telegraphic, and television transmissions. Later, equipment for large satellite ground stations for international communications was imported and four A-class ground stations, each equipped with a 30-meter antenna, were built in Beijing and Shanghai. These four stations were linked directly with ground stations in 25 countries and regions in Asia, Africa, North America, Oceania and Europe through the international communication satellites positioned over the Pacific and Indian Oceans. Through these stations in these countries and regions, China could communicate with most of the countries and regions in the world. During the same period, China also carried out its own research and development of equipment for ground stations. Now China can produce some equipment for testing purposes and has established experimental satellite communication stations in Shanghai, Nanjing, Shijiazhuang and Hohhot. China has also carried out the development of equipment for small ground stations, such as antennas with a diameter of 5 to 6 meters. This has laid the foundation for establishing and developing a domestic satellite communications system.

Driving down a tree-lined boulevard, this reporter arrived at the Beijing Satellite Communications ground station, located in Beijing's northwestern suburbs. This ground station is surrounded by lush woodland. From a great distance, I could see three milky white parabolic antennae facing skyward. Each of these antennas had a diameter of 30 meters. In the ground station's engine rooms the various instruments and meters were operating normally. These giant parabolic antennas, targeted automatically at international communications satellites 36,000 meters [as heard] above the ground, link China with all parts of the world by transmitting and receiving radio signals.

(Zhao Jinxiang), head of the Beijing satellite communications ground station, briefed the reporter on the ground station. He said: The Beijing satellite communications ground station was set up 12 years ago. All its equipment, including the antenna, receiving, transmitting, and signal control systems was imported. The purpose of this ground station is to provide international television, telephone, telegraphic, facsimile, and data transmission services via international telecommunication satellites. Since the founding of the Beijing ground station, engineers and technicians have carried out various technical innovations, continuously improved their equipment, and maintained a fine quality of telecommunications.

This reporter called on (Liu Shang), deputy chief engineer of the Telecommunications Bureau under the Ministry of Posts and Telecommunication, briefed the reporter on the development of China's satellite communications.

(Liu Shang) said: China's satellite telecommunications have developed rapidly for the past 10 and more years. The number of satellite telecommunication circuits have been increased from 49 in 1977 to more 300 in 1983. China has also succeeded in developing the first batch of ground station equipment, built some experimental satellite communications ground stations, and conducted experiments in facilitating satellite communications. In order to evaluate



the quality of domestic satellite transmission and test the performance of some of the ground station equipment produced in China, we made use of a transponder provided by the International Telecommunications Satellite Consortium to carry out tests in television and multichannel telephone transmission, data transmission, and transmission of standard time and frequencies from June to October 1982.

Taking part in the tests were China's 10 ground stations including those in Beijing, Shanghai, Hohhot, Urumqi, Shijiazhuang, Nanjing and Chengdu.

Deputy chief engineer (Liu Shang) said: China joined the International Telecommunications Satellite Consortium in 1978. China plans to rent transponders from the consortium from next year on to facilitate satellite communications in China so as to solve communication problems in remote districts, tourist areas, and coastal cities. For this reason China is now building a number of satellite communications ground stations in order to satisfy the needs of various departments in developing telecommunications. Various departments in the petroleum and coal industries and in the fields of water conservancy, power industry, and meteorology in China are also building a number of specialized ground stations. With the launching of China's experimental communications satellite, telecommunications via satellite in the country will surely develop even more rapidly.

CSO: 5500/4135

CONGRATULATIONS SENT TO SATELLITE GROUND STATION

HK041400 Lhasa Xizang Regional Service in Mandarin 1130 GMT 3 Oct 84

[Text] Around National Day, the Ministry of Electronics Industry, the Communications Department of the PLA General Staff Headquarters, and the Chengdu Military Region respectively sent congratulatory telegrams to Xizang Region and the Xizang Military District, warmly congratulating them on the operation of the Lhasa satellite ground station.

The congratulatory telegram of the Ministry of Electronics Industry states: The success of the Lhasa satellite ground station in receiving on an experimental basis the television program through the experimental communications satellite launched by our country is the result of your cordial concern, guidance and support; is the result of army-people unity, struggle and close cooperation; and is the result of the vigorous support of the people of all nationalities in Xizang and of the PLA stationed in Xizang. In view of this, we extend through you our deep gratitude and seasonal greetings to you and the people of all nationalities in Xizang. It is hoped that in the course of the four modernizations in the future, you will unite as one and will make even greater contributions toward the prosperity of our motherland as you have in the past.

The congratulatory telegram of the Communications Department of the PLA General Staff Headquarters say: The operation of the Lhasa satellite ground station will not only enable the army-men and people in Xizang to promptly listen to and watch the broadcast and television programs of the Central People's Broadcasting Station and the Central Television Station, but also play an important part in guaranteeing the improvement of Xizang Communications. This will produce a positive effect at home and abroad.

The congratulatory telegram of the Chengdu Military Region states: On 1 October, the Lhasa satellite ground station formally relayed the programs of the Central Television Station. The picture was steady and the color sharp, and the words were distinct and loud. We take the opportunity of the 35th anniversary of National Day to extend our warm greetings and cordial regards to you, the engineering team of the Ministry of Electronics Industry, the Tongnan County construction team in Sichuan, and all comrades of the ground station.

CS0: 5500/4135

MOBILE SATELLITE OBSERVATORY DESCRIBED

OW091437 Beijing Domestic Service in Mandarin 2335 GMT 7 Oct 84

[From "People's Soldiers" program]

[Excerpts] Listeners! China's space undertakings have advanced in giant strides since the founding of the PRC.

It is one of the few countries in the world capable of independently producing and launching manmade satellites. In 1967, China developed on its own a space measuring and controlling system, which has achieved great successes during the last 10 years and more in tracking and observing objects in outer space, in retrieving satellites, and in measuring and controlling the experimental communications satellite for positioning in orbit.

The system consists of a measuring and controlling center and several observatories and stations, which together form a measuring and controlling network. The measuring and controlling observatories and stations are scattered around the country. These are both stationary and mobile observatories. Today we are going to tell you about one of the mobile observatories.

This mobile observatory has been in different parts north and south of the Chang Jiang during the last decade. To carry out a mission, some 40 vehicles, and at times some 100, would move to the destination, forming a long caravan. The view was spectacular. Since 1974, it has carried out eight missions involving the launching of scientific experimental satellites and a synchronous communications satellite. Its detachment has been out on 16 separate occasions to carry out its tasks. All its missions and tasks have been fulfilled.

This mobile observatory was set up in May 1970 to meet the needs of experiments for China's second-generation satellites. It shouldered the tasks of satellite tracking and measuring, the control of the recovery section of the satellite, and the data computing and processing. In addition, it is also capable of carrier rocket observation. Its truck-mounted measuring, computing, and communications facilities are comprehensive. It has China's first self-made truck-mounted large precision measuring radar, various equipment and meter vehicles and trailers, including living quarters trailers, totaling more than 100.

Compared with stationary observatories, a mobile observatory has greater maneuverability and must handle a lot of projects under difficult working conditions. It generally needs 2 or 3 months of preparation before starting out on its mission. First, it needs to mount the equipment and materials onto the trucks in proper order and then move the trucks onto the railroad cars. When this is done, personnel have to spend several days and nights in the trailers. When the train reaches the station, the personnel must themselves unload the equipment and materials and begin the round-the-clock journey on the highway toward the destination. As soon as they arrive at their destination, they must immediately unload the equipment and materials, set up camps, and work to resolve the problems of food, housing and utilities. After this, they must begin the intensive work of positioning the equipment, laying the cable and operating the equipment to prepare for the execution of their mission. After the completion of their tasks, they have to dismantle and replace all the equipment and materials.

CSO: 5500/4137

GUANGDONG MARKS FOUNDING OF PROVINCIAL RADIO, TELEVISION

HK081316 Guangzhou Guangdong Provincial Service in Mandarin 0400 GMT 8 Oct 84

[Text] This morning, the broadcast and television department of the Guangdong Provincial Government held a tea party at the Guangdong guesthouse to mark the 35th anniversary of the founding of the Guangdong provincial radio station and the Guangzhou City radio station and the 25th anniversary of the founding of the Guangdong provincial television station.

Responsible people of the CPC Provincial Committee, its Advisory Committee, the Standing Committee of the People's Congress, and the provincial government, including Ren Zhongyi, Yang Yingbin, Chen Yueping, Wu Youheng, Wang Pingshan and Lin Jiang, together with more than 500 people from journalistic and art circles, attended the meeting.

The Guangdong and Guangzhou radio stations began broadcasting on 19 October 1949, and the Guangdong television station began broadcasting on 30 September 1959. Over the past 35 years, the broadcast undertakings in our province have developed rapidly and have produced greater and greater influence.

At the tea party, Comrades Ren Zhongyi, Yang Yingbin, and Lin Jiang gave speeches. Comrade Ren Zhongyi first affirmed the development and the important role of the broadcast and television undertakings in our province. He said: Radio and television play an especially important role in them building of socialist spiritual civilization. They can give publicity to the party's policies and disseminate news and other information at a speed much quicker than other mass media, thus influencing a wider scope of people.

All people, old and young, and even some illiterates and semi-illiterates, can learn about current affairs in the country and the world through radio broadcasts and television and can gain a knowledge of the party's policies. Radio and television can also play an indispensable role in people's recreation and education. Comrade Ren Zhongyi hoped that personnel in radio and television undertakings will better orient their work to the developing situation on the basis of carrying out the open-door and reform policies, will better adhere to the four basic principles, and will better give publicity to the party's policies. He called on them to enhance the accuracy and sensitivity of information dissemination and to introduce more advanced technology and techniques and healthy programs from abroad on the principle of rejecting

pollutants rather than excluding foreign things. He said that it is necessary to enhance the quality of programs and make them more interesting, enlightening, and amusing so that the programs will become more popular with the people and will play a greater role in popularizing Putonghua and in the building of the two civilizations. Comrade Ren Zhongyi also called for leaders at various levels to attach importance to the role of radio and television and to give active support to broadcast work.

CSO: 5500/4135



BRIEFS

**BROADCASTING STATION ESTABLISHED**--Guiyang People's Broadcasting Station was established yesterday afternoon. It is scheduled to formally go into operation on 1 October. The Guiyang People's Broadcasting Station regards the 1.3 million people of various nationalities in Guiyang City as the listeners it will serve and regards as its fundamental tasks the dissemination of Marxism-Leninism-Mao Zedong Thought and the party's line, principles and policies, carrying out education in patriotism and communism among the masses, and encouraging the masses to develop socialist material and spiritual civilizations. Provincial and Guiyang City party, government and army leading comrades and the responsible comrades of the provincial and city press, literature and art, and educational circles, and the responsible comrades of the Guiyang City trade union, youth and women organizations attended the inaugural meeting. Provincial CPC Committee Secretary Zhu Houze and Guiyang City People's Congress Standing Committee Chairman (Cai Long) spoke at the meeting. [Excerpts] [Guiyang Guizhou Provincial Service in Mandarin 2300 GMT 26 Sep 84 HK]

**TV STATION TO BE BUILT**--In order to speed up the development of radio and TV broadcasting services in the province, the Sichuan Provincial People's Government has ratified a construction project for a large modern TV broadcasting station in Chengdu City. This project is divided into two phases: The first phase is the construction of a radio and TV transmission center, with a 300-meter-high TV tower as its major element; the second phase is the construction of a color TV program production and transmission center. The planned Sichuan TV tower will be a large one, with advanced technical specifications, complete facilities, multiple functions and Sichuan characteristics. It is designed to transmit TV programs on sight channels and FM programs on five channels, to relay TV signals to every corner of the province, and to effect exchanges of TV programs with other cities, prefectures and autonomous prefectures. [Text] [Chengdu Sichuan Provincial Service in Mandarin 2300 GMT 23 Sep 84 HK]

**TELECOMMUNICATION LINKS WITH LOCKHEED**--According to HUNAN RIBAO, recently the Hunan Provincial Scientific and Technological Information Research Institute has successfully linked up its teleprinting terminal (dian chuan zhong duan) with the Lockheed Corporation of the United States, and [words indistinct] of Europe. This is the first terminal in China's scientific and technological information system that directly links up with the world. It provides the province's scientific and technological information research an effective source that can enable us to see far away, and that can keep us well-informed. It also will collect data for the scientific and technological personnel so as to save us from exhaustive laboring. [Text] [Changsha Hunan Provincial Service in Mandarin 2300 GMT 4 Oct 84 HK]

PRC, BRAZIL NUCLEAR AGREEMENT--Beijing, 11 October (XINHUA)--The Chinese and Brazilian Governments today agreed to cooperate in the peaceful use of nuclear energy. Chinese State Councillor and Foreign Minister Wu Xueqian and Brazilian ambassador to China Italo Zappa signed the agreement here. It stipulates that the two sides will co-operate in the peaceful use of nuclear energy on the basis of mutual respect for each other's sovereignty, non-interference in each other's internal affairs and equality and mutual benefit. Yang Jun and Jia 'Weiwen, vice-minister and member of the State Scientific and Technological Commission, and Vice-Minister of Foreign Affairs Zhu Qizhen attended the signing ceremony. [Text] [Beijing XINHUA in English 1431 GMT 11 Oct 84 OW]

CHANGPING COUNTY TV STATION--Beijing, 4 October (XINHUA)--The first county-run television station on Beijing's outskirts has started operations in Changping, north of the capital. TV viewers in Changping County, estimated at 300,000, will be able to receive local news and cultural and educational programs provided by their own TV station in addition to transmissions from the central and Beijing stations. Changping is one of the three satellite counties under Beijing municipality. One sector of the great wall and the Ming tombs situated in the county have made it known far and wide as a tourist resort. In China, television stations have been established in all provinces, municipalities and autonomous regions. Now the industry is expanding toward lower levels. One county in Shanxi Province is known to have set up a TV station earlier. [Text] [Beijing XINHUA in English 1126 GMT 4 Oct 84 OW]

DIAL-DIRECT PHONE TESTED--Shanghai, 29 September (XINHUA)--The first China-made international dial-direct telephone system went into trial operation in Shanghai this month, municipal telecommunications authorities said here today. Already, more than 300 guests at the International Hotel and the Shanghai Mansion Hotel have directly dialled Hong Kong and Japan. They reported their telephone conversations were loud and clear. Developed by the Shanghai Long-distance Telephone Bureau, the computerized dial-direct system will be expanded to link with other countries soon, the officials said. [Text] [Beijing XINHUA in English 0845 GMT 29 Sep 84 OW]

VIEWING BY TV SATELLITE--Lhasa, 27 September (XINHUA)--Tibetan viewers saw their first TV program beamed direct from Beijing via satellite on Wednesday night. The new ground satellite-receiving station in Lhasa, capital of the autonomous region, will now relay regular programs, which used to be sent on film by Airan and which were often a week late when shown on local sets. [Text] [Beijing XINHUA in English 1214 GMT 27 Sep 84 LD]

LANZHOU RADIO STATION BEGINS OPERATION--Lanzhou, 30 Sep (XINHUA)--After 6 months of preparations and construction, the Lanzhou People's Broadcasting Station will formally inaugurate broadcasts on 1 October. The programs to be aired by the station include the "Lanzhou News," "Jincheng Express," "Weekly News Tidbit," "On and Off Campus," "Workers' Life," "Lanzhou Past and Present," and "Storytelling in the Air." [Text] [Beijing XINHUA Domestic Service in Chinese 0005 GMT 30 Sep 84]

## INTERNATIONAL AFFAIRS

### CMEA BODY DISCUSSES TELECOMMUNICATIONS PLANS

LD092247 Budapest MTI in English 1712 GMT 9 Oct 84

[Text] Budapest, October 9 (MTI) -- The CMEA standing committee for cooperation in the radio technical and electronical industries met for the 48th session in Budapest Tuesday under the chairmanship of Minister of Industry Laszlo Kapolyi, chairman of the committee. The meeting is attended by ministers and deputy ministers of telecommunication and electronic industry from the CMEA member countries and Yugoslavia.

The agenda includes preparation of production specialization and cooperation agreements and coordination of long-term specialization schemes for 1986-90.

The two-day meeting is to discuss the state of development of a uniform switching system and digital transmission technology, determine topical aims of comprehensive programmes for the development and production of VHF networks and colour broadcasting, and expansion of agreements. The committee is to uniform technical standards for photoconductive telecommunication systems and organize cooperation in development.

The Hungarian industry is interested in 13 of the 16 comprehensive production specialization agreements between the committee's member countries, with telephone exchanges, computer equipment, tape recorders and components, telecommunication equipment, studio equipment, service and measuring instruments made in Hungary under CMEA cooperation.

Since the CMEA economic summit in summer that determined the prospects of cooperation the standing committee session is the first.

CSO: 2020/9

## INTERNATIONAL AFFAIRS

### BRIEFS

YUGOSLAV, ALBANIAN BROADCAST COORDINATION--Belgrade, 5 Oct (TANJUG)--Talks by experts from the SFRY and Albania to coordinate plans for frequency-modulated radio broadcasting were held in Belgrade 2-5 October this year. Readiness was expressed to make relevant changes in characteristics of certain radio-broadcasting stations in order that work conditions without disturbances be coordinated. Conditions were also discussed for mutually undisturbed work of VHF and FM radio broadcasting transmitters in the coordination zones, that is in belts along the Albanian-Yugoslav border. The negotiations were held within the framework of the preparations for the second session of the regional administrative conference for the planning of frequency-modulated radio broadcasting, to be held in Geneva in November and December this year. The delegation of the Radio and Television General Directorate of the People's Socialist Republic of Albania was led by Rifat Kryeziu and the Yugoslav side, by Svetoazar Kaludjerovic, assistant director of the Federal Administration for Radio Communications. [Text] [Belgrade TANJUG Domestic Service in Serbo-Croatian 1514 GMT 5 Oct 84 LD]

CSO: 5500/3002

GERMAN DEMOCRATIC REPUBLIC

SCIENTIFIC DATA TRANSMISSIONS WITH USSR BEGIN

LD091713 East Berlin ADN International Service in German 1144 GMT 9 Oct 84

[Text] Berlin, 9 Oct (ADN) -- With the start of long-distance transmission of scientific-technological data between the GDR and the USSR, a new stage in the long-term reciprocal exchange of information began today. This is in accordance with the agreement on the further deepening of research cooperation and takes account of the demands of comprehensive intensification by the use of the latest scientific-technological knowledge.

In the presence of Dr Herbert Weiz, deputy chairman of the GDR Council of Ministers and minister for science and technology, the first information search in conversational communication was carried out between Berlin and Moscow.

Starting now, it will be possible much more rapidly than previously for the Central Institute for Information and Documentation and the other institutions involved in the tests to use the data-bases of the All-Union Institute of the USSR for Scientific and Technical Information as well as the International Center for Scientific and Technical Information of the CEMA member-states.

CSO: 5500/3003

GERMAN DEMOCRATIC REPUBLIC

BRIEFS

TELECOMMUNICATIONS PACT WITH AUSTRIA—An agreement on posts and telecommunications was reached between the GDR and Austria today. It lays down measures for the development of the exchange of news and information. The document was signed by GDR Posts and Telecommunications Minister Rudolf Schulze and Austrian Transport Minister Ferdinand Lacina. They stressed that the agreement serves the further development of bilateral cooperation. The post and telecommunication agreement stresses the good relations between the GDR and Austria and refers expressly to the realization of the Helsinki Final Act on security and cooperation in Europe. [Text] [East Berlin Voice of GDR Domestic Service in German 1800 GMT 10 Oct 84 LD]

CSO: 5500/3004



## VOJVODINA LC GROUP DEBATES RADIO, TV WAVELENGTHS

LD152027 Belgrade TANJUG Domestic Service in Serbo-Croatian 1321 GMT 15 Oct 84

[Text] Novi Sad, 15 Oct (TANJUG)--The question of the allocation of wavelengths cannot be treated as purely technical, but also as profoundly political, since its consequences and solutions are of a political nature.

This was stressed by Jarmila Dobromirov at the last session of the Vojvodina LC Provincial Committee. She warned that insufficient understanding of this aspect of the implementation of constitutionality could bring about a halt in the development of the Vojvodina multilingual broadcasting system and in this way halt the implementation of the policy of national equality, which could not be considered only as a technical problem.

The Vojvodina LC Provincial Committee member informed those present that an international conference on the allocation of wavelengths will soon be held in Geneva. During preparatory meetings between delegations of Yugoslav radio and television centers held to adopt their joint stand at the meeting in Geneva, disagreements and differing views were expressed. Some radio and television centers think that it is a purely technical problem; Novi Sad Radio and Television cannot accept this because of their obligations with regard to the development of programs in five equal languages used in the province. Jarmila Dobromirov also noted that the allocation of wavelengths as well as other questions of the development of multilingual radio and television programs should be based on the political platform agreed upon in the LC and the SAWPY. Only if the development of the broadcasting system in Vojvodina is in line with the constitution could it contribute to a more efficient way of informing the public both in the province and in the country as a whole. Jarmila Dobromirov said. She also stressed that the other side of the problem concerns the audibility and range of videoreception of Novi Sad Radio and Television programs on the territory of Vojvodina. In some parts of the province--admittedly their number is going down--viewers are not able to watch Novi Sad Television programs because of inadequate adherence to the constitutional principles in development plans for the Yugoslav radio and television transmitting system. Her view is that this important question should not be left to the radio and television centers alone to deal with. It should be examined, precisely from the point of view of its constitutionality, by the competent bodies and organs of the SAWPY.

CSO: 5500/3005

**BRAZILIANS CARRYING OUT BROADCAST SURVEY IN SURINAME**

Paramaribo DE WEST in Dutch 24 Aug 84 p 1

[Text] Engineer Gustavo Stangler, expert from the Brazilian Radio Broadcasting Company (Radiobras), is currently staying in our country.

Mr. Stangler, in cooperation with experts from Telesur [Suriname Telecommunications Company] is carrying out a survey concerning our broadcasting network. This, along with other things, fits entirely within the framework of the media policy formulated by the minister of General Affairs, Doctorandus W. Udenhout, and stems from agreements that the minister of Public Works, Telecommunications and Industry, Engineer Eric Tjon Kie, made with his colleague in communications from that country, Engineer Haroldo Correo de Mattos, during a visit to Brazil last June.

**Restructuring the Radio Network**

The desirability of restructuring the Surinamese radio network stems, in part, from the fact that the 30 percent of the population who live and work in rural areas are not furnished with information in an optimal manner. Engineer Stangler has made recommendations with regard to the implementation of transmissions in the medium and short (tropical) wavelengths, which could be received throughout the entire country.

In the process, especial attention has been paid to formalizing the method of approaching the allotment of air time, while also taking into consideration the large investments that accompany the establishment of each new radio transmission installation and the foreign exchange aspects connected with this.

The proposed restructuring of our radio network is organized into two phases. In the first phase, the efficient employment of existing transmission apparatus will be maximalized, while, in the second phase, establishing a shortwave radio broadcasting network, that will cover the entire country, will be taken up.

**Involvement of Local Broadcasts**

Within the framework of the survey, discussions were conducted with the local radio stations, while Mr. Stangler and his Surinamese counterparts personally

oriented themselves with regard to the transmission apparatus being used and made recommendations. Various measurements were made on location in Paramaribo, the districts and in the interior.

The Radiobras expert will depart to return to his country next Monday.

12507

CSO: 3214/59

## CONGRESSIONAL DEBATE CONCERNING INFORMATICS BILL DISCUSSED

Sao Paulo ISTO E in Portuguese 5 Sep 84 pp 56,57

[Text] Senator Roberto Campos worked hard last Wednesday night. His love for progress at any cost led him to take up the microphone and interrupt the speaker several times in Congress, a respectable effort for the elegant diplomat of 65 years, who became a politician--he is a senator from Mato Grosso elected almost 2 years ago from the PDS [Social Democratic Party]--and devotes himself tirelessly to advocating free imports of computers. In the name of that principle, which is opposed by the bill which the government put together to regulate the national informatics market, the former Minister of Planning allowed himself that night to even exchange verbal abuse with flustered opposition member Del Bosco Amaral (PMDB-SP) [Brazilian Democratic Movement Party-Sao Paulo], who he called a "kid." For Campos it was a matter of trying to prevent the government bill from becoming an urgent matter, as Planalto Palace wanted, since it is concerned with legislating on the controversial subject at a time when it only has 6 months remaining in government.

In fact, the bill, which will be evaluated until 8 October, has split the country from end to end, beginning with the government itself. At the tip of the immense iceberg made up of pressure groups, are the Special Secretariat of Informatics (SEI), run by the military men of the National Security Council (CSN), the Ministry of Communications in which are the public officials and the high technology electronics industry, which is frequently synonymous with foreign capital. The bill seeks to regulate the participation of the large international brands in the \$2 million market this year. To attack it, the experienced Senator Campos had at his side in the battle of interruptions the young deputy, Rita Furtado (PDS-RO) [Social Democratic Party--Roraima], 39 years of age, a first timer trained in journalism and the arts, and also the wife of the secretary general of Communications, Romulo Furtado.

The nationalist front, which insured the discussion of the official bill within the framework of an urgent matter, was paradoxically anchored within the heart of the opposition legislative bloc. Tuesday, SEI Secretary, Reserve Colonel Edison Dytz, visited all the party leaders in Congress and later received a group of intransigent supporters of protectionism in his office with special attention. They were members of the PMDB Informatics

Commission: Senator Severo Gomes and Deputies Odilon Salmoria and Cristina Tavares. This rapprochement between the military men who run the SEI and some of the hardest liners of the legislative left does not appear, however, as simple as the opponents of the bill suggest, who in the cutting statement made by Senator Campos, see in that the specter of an "alliance of the milicrats of the SEI and the organized left." Members of the opposition seek in fact to insure the privileges of the national factories, but have some reservations on some of the points of the official text. The Sao Paulo government, for example, asks for a more exact definition of what a national company is. It seeks to have the National Informatics Plan submitted to the Legislative Branch. It also wants the National Informatics Commission, which would be responsible in the future for establishing the standards for the Brazilian computer industry, to be directly linked to the president of the republic and not to the National Security Council.

The most active force in that engagement, up to now taking place in the field of ideas, is undoubtedly that of the manufacturers. In favor of Colonel Dytz and interventionism is the young national sector, which last year produced the equivalent of \$687 million and is grouped under the mantle of ABICOMP (Brazilian Association of Computer and Accessory Industries). Its leader, Edison Fregni, an engineer and founder of Scopus--12.6 billion cruzeiros in revenues last year and 1.7 billion in net profits--one of the most successful brands of microcomputers on the domestic market, believes that the government acted well. "With some amendments, the bill could become something extremely positive for the country." To him, the danger consists of opening the door of the custom-house to foreign competitors. "The Ministry of Communications is practically the only effectively organized institution against protection of the market," charged the president of ABICOMP. "And that is because its policy of telecommunications is a catastrophe." Furtado does not deny that stigma. She only wants to know the "manner in which the bill is written." Her chief, Minister of Communications Haroldo Correa de Mattos, states the difference precisely: "They gave such authority to the SEI that it would have control over all the electronic industrial park and it would take over the authority of the Ministry (of Communications). A generous interpretation of the text would actually allow officials of the SEI to legislate on their own account, even on the design of printed circuits, components of calculators and also on nonreplaceable parts in temporary telephone switching centers, now in the testing phase for future applications by the subsidiaries of the Ministry of Communications.

The haste with which Fregni and his industrial colleagues, Dytz and his bureaucratic comrades, and even the active Deputy Tavares and her friends of So Diretas, maneuver to push through the government bill within a period of 45 days, gave, however, an unexpected argument to Senator Campos and his bloc. In addition to the multinational manufacturers, the enemies of the reservation of the market are concentrated among the users of computers--mainly the industries which need to compete on the foreign market. That powerful pressure group shelters itself under the umbrella of ABINEE



(Brazilian Electro-Electronic Industry Association), which up to now is maneuvering to bring up an urgent handling of the text in Congress. Defeated in that battle, the president of ABINEE, Firmino Rocha de Freitas, who paradoxically represents the national sector in an area strongly dominated by foreign brands, wants to negotiate "a reduction in government interference in addition to permission for foreign companies to participate as minorities in the voting capital of national industries."

The multinationals, in turn, are also moving on the battle line. The representative in Brasilia of the largest world manufacturer of computers, IBM, spent Wednesday night in Congress to hear the reading of the bill. "We do not have the slightest hope of changing Brazilian policy," says Nelson Proenca, who in recent months put together a program of visits by legislators to his plants in the United States. More confident, the president of Olivetti in Brazil, Enrico Misasi, who visited several legislators last week, promises to fight to make "these 8 years (new period of reservation of the market) become 8 months." He states, not without reason, that partnerships with the large international brands means a "guarantee of exports" within a few years.

The reservation of the market for national war materiel industries has been functioning since the last decade as a lever for an active trade policy abroad. However, in the majority of those cases, primarily aircraft and combat tanks, it was a matter of products with intermediate technology. Computers are the vanguard of western industry and Brazilian competitors who assemble processors on the basis of circuits imported from the United States are beginning to detect a disquieting trend among their clients in favor of smuggled machines and software.

On the legislative front, expectations are that the bill may pass—with cosmetic changes. As speaker, Senator Virgilio Tavora (PDS-CE) [Social Democratic Party—Ceara] is obliged to give a push to the text signed by President Joao Figueiredo, even if his candidate for president, Deputy Paulo Maluf, has not expressed any support for the reservation of the market conceived by the SEI.

The confusion among the men in power is so impressive that Deputy Cristina Tavares heard an unsuspected praise from Colonel Dytz: "How good it would be if the PDS were made up of persons such as you who are serious and want to help Brazil." The PMDB is even willing to fight for the extension of the period for reservation of the market, something with which the SEI agrees. However, the most important amendments may be presented to speaker Virgilio Tavora as supraparty proposals.

Meanwhile, the movement in the area opposed to the government collides with an unmountable wall. At the beginning of last year, Minister Haroldo Correa de Mattos sought an understanding with the leader of the government in the Chamber, Deputy Nelson Marchezan, who he sounded out with respect to the possibility of an obstruction to the official bill. The reply by the leader was implacable: "You need to get together at home first." Since that was not possible, the duel will be in the open and at the cost of the taxpayer.

DHAKA TELECOMMUNICATIONS EQUIPMENT MAKER DESCRIBED

Dhaka THE BANGLADESH TIMES in English 6 Sep 84 pp 5, 6

[Article by M. Serajul Islam Khan]

[Text] Telephone Shilpa Sangetha (TSS) is playing a significant role in developing the country's industrial infrastructure. The Sangetha is engaged in manufacturing telecommunications equipment through its precision making industry located in Tongi, Dhaka. It is one of the very few industries in Bangladesh, where precision, sophistication, high degree of quality and modern concept of production and industrial management are being followed. The production depth and spectrum of precise electro-mechanical parts and components can hardly be compared with any other industries in the country.

This Sangetha (Corporation) was established in the year 1967. It started as a joint venture of the then Government of Pakistan and M/s. Siemens A.G., West Germany, under the name and style as "Telephone Industries Corporation". At a later date, in the year 1973 by an Agreement between the People's Republic of Bangladesh and M/s. Siemens A.G., West Germany--the Corporation changed its name under the name and style of "Telephone Shilpa Sangetha Ltd." The industry in Tongi started its production in the form of fabrication of parts in September '70 and during the liberation war in 1971 the production was slowed down. However, after re-emerging as Telephone Shilpa Sangetha in Bangladesh, the production programme of the industry was re-planned. As a result both the production depth and spectrum were increased considerably to achieve the following objectives:--

--to make Bangladesh self-sufficient in meeting the requirements of Telephone Exchanges and instruments expeditiously.

--to create employment opportunities.

--to provide opportunities for acquiring and improving technical know how in a sophisticated and precision industry based on most modern lines of management and production control involving high precision machinery and equipment.

--to reduce dependence on imports.

Overcoming all initial setback, the industry is now in a position to meet the demands of supply and installation of telephone exchanges in the country by producing its rated output capacity of about 20,000 line unit exchange equipment and 30,000 telephone sets.

According to the requirement of Bangladesh Telegraph and Telephone Board (a monopoly organisation for operation, maintenance and development of telecommunication services in the country), TSS supplies the exchanges on turn-key basis. Starting from the planning of the exchanges, production of equipment, testing, installation and final exchange testing are done by TSS. The exchanges are then handed over to T. & T. Board for final acceptance test after which the exchanges are put into operation by T. & T. Board.

The product range of TSS includes:

--subscribers line circuit, line finders, 1st group selectors, service group selectors/Trunk group selectors, final selectors, local group selectors/subscriber trunk group selectors, service repeaters, incoming junction repeaters, auto junction repeaters for trunk exchanges, STD repeaters both incoming and outgoing, exchange signalling equipment, EMD motor switches for different switching stages, call meters, test board, enquiry and complaint desk, trunk board, operators board, telephone sets, steno-phone, PABX up to 25 lines, large size PABX of 100 lines and above (under development).

From the inception of this industry, TSS has so far produced 1,37,000 line units of exchange equipment and 1,53,500 Nos. of telephone sets till June, 1984. From these equipment a total number of 65 automatic telephone exchanges having 1,32,000 line units have been installed in the country and more 7,400 lines are under installation along with a programme of total 18,600 line units during the year 1984-85. The growth of about 5 times in the telecommunication network in the country after liberation has been achieved due to steady flow of equipment from this industry. It may be pointed out that out of a total of 1,42,600 lines of automatic telephones installed in 65 different exchanges in the country, 32,000 lines are of old and obsolete F-1 type located in nine exchanges and they require to be immediately replaced for improvement of telephone services. Since TSS is engaged in fulfilling the national demand through Bangladesh T. & T. Board, it could not concentrate effectively for the exploration of export market. Even then some equipment parts were exported to West Germany and ITU Geneva. With the technological innovation and introduction of Digital Electronic Switching system by the industrialised countries and for their marketing drive, it is becoming more competitive for a developing country like ours to explore such possibilities at this stage.

Besides normal production, for Research & Development (R. & D.) works the Sangstha has recently opened a Technological Development Division and the division is now making all possible efforts on the following areas:--

- development of new products,
- production of import substitute items,

- improvement in the present system,
- cost rationalisations,
- value analysis,
- diversification of product-range.
- introduction of digital electronic system.

The development of a large size PABX and new stenophone by utilising locally manufactured Printed Circuit Board (PCB) are the positive achievements of the Technological Division of the Sangatha. Production of some test equipment has also been undertaken as an import substitute which would help the country in saving foreign exchange.

Telephone Shilpa Sangatha is a growing industry in the country with its consistent expansion and the modernisation of telecommunication services in the country by the Telegraph & Telephone Board. TSS is making positive contribution in the improvement of the country's economy and industrial infrastructure. With the implementation of the government decision about the introduction of Electronic Switching System in the country's telecommunications network by Siemens EWSD-type of West Germany as national system, the infrastructure available in this industry may be utilised for manufacturing and assembly purpose.

CSO: 5500/0002

## BRIEFS

NEW TV TRANSMITTERS COMMISSIONED--A TV transmitter was commissioned today at Navsari in Gujarat. It is the 141st TV transmitter in the country and the 9th in the state. It will cover an area of 1,500 square km with a population of over 450,000. [Excerpt] [Delhi Domestic Service in English 1530 GMT 27 Sep 84 BK] A TV transmitter was commissioned today at Dharawar in Karnataka by the minister of state for external affairs, Mr A.A. Rahim. It is the 142d TV transmitter in the country and the 8th in the state. It will have a range of 25 km and will cover a population of about 10 lakhs. [Excerpt] [Delhi Domestic Service in English 1530 GMT 28 Sep 84 BK] A TV transmitter was inaugurated today at Aligarh by the union minister of state for rural developments, Mrs Mohsina Kidwai. It is the 143d TV transmitter in the country and 19th in Uttar Pradesh. It will cover an area of 2,000 square km with a population of over 11 lakhs. [Text] [Delhi Domestic Service in English 1530 GMT 29 Sep 84 BK] A TV transmitter was commissioned today at Mysore. It is the 145th TV transmitter in the country and the 10th in the state. It will have a range of 25 kilometers and will cover a population of over 8 lakhs. [Excerpt] [Delhi Domestic Service in English 1530 GMT 1 Oct 84 BK] A TV transmitter was commissioned today at Ratlam in the central state of Madhya Pradesh. It is the 146th TV transmitter in the country and the 7th in the state. It will cover an area of 2,000 square km with a population of nearly 4 lakhs. [Text] [Delhi General Overseas Service in English 1330 GMT 2 Oct 84 BK]

NEW RADIO CHANNEL PLANNED--All India Radio will start a new national channel during the Seventh 5-Year Plan for broadcasting national programs. Disclosing this the director general of All India Radio, Mr S.S. Verma, told our Trivandrum correspondent that the channel will cover the entire country. Another major expansion program envisaged in the seventh plan is the extension of FM broadcast for more stations. [Text] [Delhi Domestic Service in English 1530 GMT 2 Oct 84 BK]

CSO : 5500/4702



## BRIEFS

RADIO JORDAN FM FREQUENCY CHANGE--Amman (PETRA)--An official source at Radio Jordan Wednesday announced that radio transmission on the FM band in the Aqaba region, currently on 99 megahertz, will be changed to a new frequency. The International Telecommunications Union (ITU) is preparing a new plan for reassigning transmission frequencies in the FM band which is expected to be ready by the end of 1984, the source said. Five years ago, the source added, Radio Jordan had started implementing a radio network for the FM band. Transmitters have actually been built in Amman, Aqaba and Ajlun operating on various frequencies to cover all the kingdom. The new frequencies will be announced in accordance with the plan set by the ITU and adopted by its member countries, the source said. [Text] [Amman JORDAN TIMES in English 13-14 Sep 84 p 1]

CSO: 5500/4501

# PANA GOALS, PROBLEMS REVIEWED

Johannesburg RAND DAILY MAIL in English 2 Oct 84 p 10

[Article by Nomavenda Mathiane]

[Text]

**LEADING** Southern African media managers, university lecturers in journalism and mass media communications departments, editors and senior journalists met in Harare last month under the auspices of PANA (Pan African News Agency) to look into ways of developing greater regional co-operation between news agencies.

PANA — conceived a decade ago at an OAU meeting and launched in 1981 — has the blessing and support of all the Frontline States and SADC countries.

Its major objective is to create a new world information and communication order in Africa — that is, to write news about Africa by Africans for Africans.

The idea is not to destroy the already-established multinational news agencies but to create a new African awareness and perspective where coups and killings in Africa will cease to be treated as sensationalism.

It is hoped a network of inter-Africa communications which will link the whole continent, and recapture the lost Africa's pride and dignity will be established.

The conference met a year after the Kadoma meeting in Zimbabwe where Ministers of Information of the Frontline States and Nigeria met to discuss "a strategy of information of the Frontline States and to define main areas of co-operation in the field of information in the region".

It was at this conference that the ministers criticised what they called South Africa's media attacks on the Frontline States and claimed that South Africa was being used by foreign journalists as a base from which to file distorted copy.

This gave birth to Policy Statement 13 — now known as "the Kadoma paper".

The document calls on participants at the conference to give maximum assistance to organisations such as PANA and also advocates the training of journalists.

The ministers also banned foreign correspondents

accredited to South Africa practising in African countries as well as those reporting to regional bureaux in one of the other independent countries of the region.

It also urged other international media to follow the example.

Last month's seminar was a report-back on several previous meetings held by the Southern pool — Zambia, Mozambique, Zimbabwe, Tanzania, Malawi, Botswana and Lesotho.

While the theme was "developing regional co-operation between news agencies in Southern Africa", issues such as the training of journalists, rural reporting, mass media research and "ways of countering South African information aggression" were discussed.

In his official address, Mr C O Diallo — the director general of PANA — referred to PANA's teething problems which he said were caused mainly by the Third World economy.

"Time and know-how are on our side. We must prepare good conditions for those coming after us." He spoke of a new breed of writers who need to be

analytical and positively critical.

Speaking on developing regional co-operation, the representative from AIM (Mozambique), Mr Fernando Lima said: "We must always be confronted with our regrettable reality — that is, if we don't provide accurate information then the South Africans will do the job with the margin of prejudice of which we are all aware."

"We come again to the need of the strengthening of our relations, which also implies political sensitivity and accuracy in our reports."

He encouraged the development of photographic departments and the exchange of pictures between regions.

"Our people must be allowed to see Zimbabwean traditional dancers, the copper miners of Zambia, the shepherds in Lesotho and the beauty of Swazi women."

In a hard-hitting address, Mr Fred Chela of Zambia put the failures of agencies' functions right at PANA's door.

Speaking on the existing patterns of co-operation within the regions, he blamed the mother body for not living up to its promises and not carrying out resolutions made at conferences.

"News exchange co-operation at PANA level has been lamentably weak mainly because the PANA directorate does not appear to take seminar resolutions seriously."

"The Southern pool has held

three seminars so far at which the weakness of PANA has been stressed.

"The birth of the Pan African News Agency heralded a new era vis-a-vis the fair and accurate dissemination of information on Africa and about African affairs. It is not an understatement to say this raised hopes for an era in which an African impact about continental events was to be fully realised and interpreted."

"But it appears this hope has whittled with the initial conceptional fever and zest that swept the minds of the architects of this grand idea."

"The continent and member countries should benefit tangibly from their contributions."

"PANA has been walking for the past 18 months and should by now have steadied itself and be able enough to walk long distances without subjective tumbles, save the occasional and inevitable ones," said Mr Chela.

Dealing with "staff development and exchange", Mr Francis Kasoma — head of the Department of Mass Communication at the University of Zambia — spoke of the frustrations faced by journalists.

He raised what he termed "administration bottlenecks" which made it difficult for writers who had undergone training to practise what they had learnt from workshops.

"It is of no use, for example to make a senior reporter undergo a course in edit-

orial writing if the person would never be given an opportunity to write editorials," said Mr Kasoma.

"The biggest problems I have experienced in running courses for working journalists is to try and help them find solutions to bottlenecks which make their work difficult, since most of these bottlenecks are caused by administrative arrangements in the working situation."

"One has to be careful not to give advice that could undermine the smooth running of the organisations."

Regarding trainers, Mr Kasoma said it was discouraging for the trainer to have people sit in class for three months, six months or even a year and gaining nothing from the course.

"It is most illogical for a mass media organisation to send people for a short course knowing very well they cannot make it. Miracles rarely happen in education."

"No media personnel educator can be expected to train someone who is not ready for training."

Rural reporting came under discussion and matters such as the assistance for the training of South African black journalists was also discussed at length.

Regions were given tasks to perform and report back — hopefully at next year's seminar to be held in Malawi.

## MINISTER ANNOUNCES COLOR TRANSMISSION BY ETS

Addis Ababa THE ETHIOPIAN HERALD in English 6 Sep 84 p 3

[Text] Comrade Feleke Gedle-Giorgis announced here last night the introduction of colour transmission by the Ethiopian Television Service whose network now covers 11 of the 14 administrative regions of the country.

In making the announcement, Comrade Feleke Gedle-Giorgis, Minister of Information and National Guidance and COPWE Central Committee member, said that in line with the priority given by the Revolutionary Government for the expansion and strengthening of the country's mass media, it was extremely gratifying that the expansion and modernization of the Ethiopian Television Service has taken place as the Ethiopian people are preparing themselves to celebrate the formation of the Workers Party of Ethiopia and the 10th anniversary celebration of the Popular Revolution.

Comrade Feleke recalled that television service was introduced in Ethiopia twenty years ago for the sole purpose of the glorification of the emperor, its services being limited within the capital city.

Comrade Feleke pointed out that the Ethiopian Television Service would be observing the 20th anniversary of its establishment next October.

During the past ten years of Revolutionary struggle to establish a socialist society based on equality, justice and democracy, Comrade Feleke further pointed out, and added that the Ethiopian mass media have shown significant development in terms of their coverage and distribution capacity and in the orientation of their content.

As television is an effective medium which combines both visual and audio-communication, it can make an effective contribution to the nation-wide effort currently going on to raise the standard of living, the educational level and consciousness of the broad masses, said Comrade Feleke.

Stressing that the television Service ten years ago was poorly equipped, Comrade Feleke said that following the overthrow of the feudal regime and as a result of the keen interest of the Provisional Military Government and particularly due to the directives of our Revolutionary Leader, Comrade Mengistu Haile-Mariam, Chairman of the PMAC and of COPWE and Commander-in-Chief of the

Revolutionary Armed Forces, the accelerated development of the infrastructure of the mass media was made possible and that television has progressed from being a one-city local television station into a national network reaching almost all administrative regions.

"It is obvious that this remarkable expansion of television will make a significant contribution to the social, economic and cultural development of our revolutionary Motherland," Comrade Feleke said.

Comrade Feleke further emphasised that the expansion of television to the administrative regions throughout the country would no doubt be of inestimable value in strengthening and deepening the unity of the broad masses of Ethiopia.

The unity of the broad masses, said Comrade Feleke, can be enhanced when all the culture, customs, traditions are given every encouragement to develop along socialist lines without any distinction due to ethnic origin, religion or language.

The expansion of television throughout the various regions and provinces of Ethiopia will make an effective contribution for the realization of the aforementioned principles which are enshrined in the National Democratic Revolution Programme, Comrade Feleke said.

Ethiopian Television Service now covers the main cities and towns of Shoa, Hararghe, Eritrea, Wollo, Gondar, Kaffa, Gojjam, Tigray, Sidamo, Illubabor and Wollega.

It was further revealed that the proceedings of the historic WPE Congress and the 10th anniversary celebrations of the Revolution will be transmitted live by television from the Congress Hall and the Revolution Square respectively.

CSO: 5500/5



## BRIEFS

CONDAR TV SERVICE--CONDAR (ENA)--A television transmitting centre built in line with the priority given by the Revolutionary Government to the expansion of mass media facilities went into operation in Condar town yesterday. The transmission centre was inaugurated by Comrade Wegayehu Sahlu, Chief Administrator of Condar region. Comrade Wegayehu said on the occasion that the transmission centre would tremendously contribute towards the construction process of the area in the political, economic and social fields. The centre with a capacity of 500 watt will serve Condar town and its environs and transmits daily programmes from the main television studio in Addis Ababa. The special programme organized in connection with the inauguration of the centre was attended by members of the WPE Committee for Condar town and Zuria province, representatives of government and mass organizations and invited guests. [Text] [Addis Ababa THE ETHIOPIAN HERALD in English 6 Sep 84 p 6]

CSO: 5500/5

SABC CONSIDERING SATELLITE TELEVISION TRANSMISSIONS

MB021755 Johannesburg RAND DAILY MAIL in English 2 Oct 84

[Text] The SABC is negotiating with overseas parties to use satellites for TV transmission. The SABC will not comment but it is understood South Africa is turning to France for help. South Africa has for a long time assisted France in tracking rocket launches.

Although this country has the know-how to build its own satellite, the present economic climate rules this out. The country is more likely to hire channels on a communications satellite--much cheaper in the long run--share the costs of eventual replacement of the satellite. If the negotiations prove successful, the SABC would have permanent access to satellite channels to use as the corporation wishes. At present the SABC "buys" time on another owner's channels for specific programmes beamed by satellite. One of the SABC's executives involved in the project is overseas at the moment. The satellite TV plan is also believed to include the "independent" homelands.

With current technology it will be possible to beam to a selected area without having to set up a ground network for signal relays. The SABC has investigated several options to bring its signal and others to remote areas and to expand its activities. The options have included microwave transmission. The satellite will be particularly helpful relaying educational programmes, which are important to the sub-continent.

A hint that satellite technology was on the way was given by the chairman of the board of governors of the SABC, Prof Wynand Mouton, in the SABC's last annual report. The satellite appears to be a cheap, reliable alternative to cable TV and the technology involved will give local industry a considerable boost.

CSO: 5500/11

SADC OPINION-FORMING ROLE

MB051540 Johannesburg SAPA in English 1441 GMT 5 Oct 84

[Embargoed until 1700 GMT]

[Text] Pretoria, 5 Oct (SAPA)--Radio was practically the only method by which South Africa could get its message across to Africa, the director-general of the SABC, Mr Riaan Eksteen, said tonight.

Addressing the Rapportryers in Pretoria on the role of the SABC as an opinion former, Mr Eksteen said the corporation's task of providing information, and thereby helping form opinions, stretched beyond the country's borders. Africa was the prime target of the SABC's external radio services, he said.

The 210 hours per week broadcast by the external radio services was little [as received] to counter the flood of propaganda the international electronic media directed against the republic, Mr Eksteen said.

Economic factors, as reflected in South Africa's growing trade with black Africa and the republic's ongoing diplomatic actions and initiatives in Southern Africa, helped to involve Africa, Mr Eksteen said.

Radio was practically the only method to carry South Africa's message, especially to Africa, he said. "News, factual and objective, from South Africa and from Africa, is important." He said the main news bulletins were followed by news comment in which South Africa's viewpoint on issues of the day were stated and where many "distortions" were set right.

Guidelines had been drawn up recently to which the SABC would adhere in the future, Mr Eksteen said. The guidelines were:

--The SABC would take note of the demands of the time and act accordingly (Daarby Aanpas).

--It would take into account the wishes and needs of the various culture and language groups to enable the corporation to constructively inform, educate and entertain.

--It would carry a "positive message" about South Africa and its peoples.

In its programmes, the corporation would help promote the positive rather than put the accent on differences.

The SABC would continue to put the accent on information rather than "political in-fighting," the director-general said.

By far the greatest proportion of the corporation's programme budget was spent on cultural productions. On English and Afrikaans radio, seven percent of broadcast time was taken up by news bulletins, and eight percent on talk, discussion, magazine and interview programmes. Music accounted for about 37 percent of broadcast time. The balance was made up of programmes that depended on talent.

As far as TV1 was concerned, news took up 12 percent of broadcast time, and documentary and journal programmes 11 percent. Music accounted for just more than three percent of broadcast time and the rest of the time was devoted to talent programmes, Mr Eksteen said.

CSO: 5500/14

# RADIO FREE EUROPE SAID TO 'DOWN' FRG FIGHTER PLANE

Moscow APN DAILY REVIEW in English 27 Sep 84 pp 2-3

[Item by APN political correspondent Vladimir Nakaryakov under the rubric "APN Informs and Comments"]

[Text] Vladimir Nakaryakov, APN political correspondent, writes:

Washington has allocated billions of dollars to modernise the instruments of U.S. psychological aggression—the Voice of America and the Munich-based subversive Radio Liberty and Radio Free Europe. Each of these stations broadcasts for nearly 1,000 hours a week.

Washington concentrates on subversive activities aimed to destabilise socialist countries. Radio Liberty and Radio Free Europe employ 1,674 associates, mostly dissidents and traitors, directed by CIA agents under former U.S. Undersecretary of State George Buckley.

For years now the CIA-financed radio stations have been engaged in a massive anti-Polish campaign, the tone to which is set by President Reagan. The newspaper TRYBUNA LUDU said that the propaganda aggression by the U.S. subversive radio stations broadcasting to Poland has assumed an unprecedented scale. The provocative broadcasts to Poland which Reagan, confirming his inclination to bad-taste jokes and paradoxes called "a powerful voice for good," continue for 35 hours a day. For all that, however, America's hopes to establish a fifth column in Poland and direct its hostile activities have failed.

A recent event has shown that the word "subversive" applies to the U.S. radio stations in Europe also directly. This happened when Radio Free Europe downed a Tornado fighter of the West German Air Force. The plane crashed, having flown over the powerful transmitters at work in Holzkirchen outside Munich. Experts say that the plane crashed because the beams of the transmitters had affected its electronic controls.

According to the Bible, the sound of trumpets destroyed the walls of Jericho. American propaganda agencies are eager to make their orchestra louder to destroy the walls of socialism. We can guarantee that this will not take place. However, as the incident outside Munich showed, military planes should take care of themselves.

(APN, Sept. 26. In full.)



SIEMENS, BOSCH, ERICSSON VIE FOR TELEMATICS EQUIPMENT MARKETS

Munich INDUSTRIEMAGAZIN in German Jul 84 pp 12-22

[Excerpts] The established manufacturers in the German telecommunications business are frightened. Technical innovations and liberalized markets are attracting giants like AT&T and IBM to their territory, which has been protected for decades. Are the official construction firms equipped for international combat?

"If anyone thinks that we can't do this, we are quite ready to be put to the test with a trial contract." Dr. Roland Mecklinger, in the management of Standard Elektrik Lorenz AG (SEL) in Stuttgart, and responsible for public communications engineering, defends himself vehemently against the multiply overpowering competition.

The 48-year-old manager is considered a hot spur in competition. In a daring venture, he wants to conquer one of the most attractive growth markets in telecommunications, the market of cellular mobile telephone systems. In the race for the coveted key contract for the planned German-French 900-megahertz auto telephone network, SEL, together with AEG and the Société Anonyme de Télécommunication, veered away from the unified front of the vendors.

Five binational conglomerates were striving for the award from the postal agencies on both sides of the Rhine. But the triple association was the only one that pursued a fully digital system. Such a system would transfer conversations in the form of electronic pulses, suitable for computers, even along the transmission path between the car and the stationary postal transmitter.

The remaining groups of manufacturers wish to bridge over the broadcasting path rather in an analog technology, which means in the form of electromagnetic wave systems. For them, the digital broadcasting technology is not yet mature enough for trouble-free operation of the complicated cell networks. "That can't reasonably be done before 2 or 3 years," objects Dr. Herbert Weber, Chairman of the Board of the ANT Communications Engineering GmbH in Backnang. He represents the majority view. This majority consists of the following groupings:

Siemens AG, the third largest manufacturer of telecommunication devices in the world, and Philips Communications Industry AG (PKI) in Nuremberg, already for a long time in the mobile telephone business under the trade name "Tekade", have united with the French State Enterprise Thomson-CSF and CIT-Alcatel. The latter two have marched in step since September 1983 in the telecommunications area, as Thomson Télécommunications.

The German subsidiary of the powerful Swedish exporter, the communications and office engineering company L.M.Ericsson, which can point to the construction of the Scandinavian cellular telephone network, has allied itself with Secre, a subsidiary of the French Jeumont-Schneider group.

The previous AEG subsidiary ANT, presently owned 40 percent each by Bosch and by Mannesmann, shares its broadcasting and transmission know-how with the Bosch business area of electronics and the French technology company Matra. The latter has already set up a mobile broadcasting network in metropolitan Paris, although this network is limited in its capacity.

The American electronic giant Motorola is worldwide the largest manufacturer of automobile telephones, due to the enormous U.S. market. Motorola is sending its German and French subsidiaries into the battle.

#### Mobile Radio: Breathtaking Growth Prospects

The parade demonstrates: What is involved is more than better technology. The point here is a springboard to a powerful future market. According to the intention of its initiators, the German-French network should be the first stage of a future international mobile radio system in continental Europe.

The growth prospects are breathtaking: In Sweden, Ericsson has constructed the Nordic Mobile Telephone System (NMT), and this has been operational for 2 years. Here, explosive demand is permanently exploding the forecasts. The trend in the U.S.A. is pointing upwards just as steeply. Even a conservative Siemens estimate is figuring with a million mobile connections in the Federal Republic by the end of the century, while the present automobile telephone network permits just 20,000.

According to an Ericsson forecast, about 10 million wireless automobile and handsets could be installed by 1995 - a market in the billions. It is pre-supposed that the telecommunication administrations will set favorable tariffs to exhaust the technically possible subscriber potential. Only in this way can the numbers of the units be reached quickly, which are necessary to lower the terminal price - today still around 15,000 marks - to below 2,000 marks within a few years. Not the network equipment, but "the radio telephones are the major business," declares the Siemens manager Dr. Hans Baur, manager of the business area of communications engineering who, since 1 April 1984, has run the public telecommunications and radio business of the electrical giant.

In the public network business, the high development investments initially assign newcomers to their niches. However, the battle of established concerns with one another increases in severity. Consequently, in the terminal area, international as well as nationally established vendors such as ITT or Siemens, Telephone Construction and Standard Time (TN) or DeTeWe already today must defend themselves against upstarts, companies outside this technical area of business, and foreign interlopers. The primary clash here is between the telephone giant AT&T and the computer colossus IBM - both Number One in their respective area. Freed from anti-trust fetters, they can forage in the turf of the rival.

#### Extension Stations: Computer Contra Telephone Constructor

On the other hand, newcomers have a more difficult time in the German extension station market: In the dominating lease business, contracts run for 5 to 10 years and thus are currently still braking the conversion to digital technology.

Consequently - measured in terms of existing installations - Siemens can still see itself as the West German market leader with absolute preeminence in large extension station systems, and the Bosch subsidiary Telephone Construction and Standard Time (TN) - with about 20 percent - can enjoy a clear second position, permeating all categories. In the foreground both of them naturally are still exceeded by the post office, which is strongest with smaller installations but which is supplied by eight steady vendors according to fixed quotas - among them also Siemens and TN.

The dominating stags are still profiting from the fact that, in medium and large companies, the preliminary decisions concerning the procurement of telephone and telex equipment and of computers are made at various places, namely house engineering and the EDP department.

Nevertheless, the well-worn marketing and field-service rails of the extension station vendors provide no easy ride. According to a Siemens analysis, today there is only a 5 percent overlap between the business area of EDP and telecommunications within the communications engineering enterprise (UB-K), which combines the terminal side. But in 4 years the overlap will be 15 to 20 percent.

It is not only the technical integration of the functions that is to blame for this. Rather, the larger users are increasingly drawing logical organizational conclusions: "The information manager, who worries about the overall system, is on the way," assures Dr. Reinhard Veelken, general director in the UB-K. "And this increases opportunities for the data processing people."

But their potential triumphs in the terminals area - familiarity with information problems of various groups of users and the necessary software and system know-how - they will only be able to deploy fully when the postal

network has become largely digitalized. Only then can the users exhaust the performance reserves of digital extension systems and multi-functional terminals.

The giant IBM, just like Nixdorf itself, is permanently regarded as a serious competitor by Siemens Company. IBM is still waiting for a favorable opportunity to come into the European market with a new generation of digital telephones. The product that is currently still offered and that was developed and constructed in France was indeed a pioneering venture but has in the meantime become outmoded. Nevertheless, according to IBM-German chief Dr. Lothar Sparberg, "it has not yet been decided," whether and to what extent the U.S. partner Rolm should here render developmental aid.

On the other hand, Dr. Karl Hinrich Vöge, manager of Nixdorf product marketing for communications engineering, already today sees opportunities to get a foot in the door. His sales argument: "Every time a new unit or a new service is connected, new inhouse lines must be laid, and the cable shafts are filling up. This can be obviated with a digital extension station transmission for data and voice." In the customary Nixdorf manner, the installations, "are generally sold within the framework of comprehensive solutions. Penalties for premature lease cancellations often are of little significance here."

In this fashion, Nixdorf - as the first and up to now the sole vendor on the German market, except for the Siemens subsidiary DeTeWe - has in the meantime installed more than 250 digital extension station systems. This modes number will be multiplied when, during the coming years, the avalanche of replacements begins to move, at first with the small and medium categories that are covered by Nixdorf. About 60 percent of all installations existing in the Federal Republic have been operating for more than 5 years, according to the "Comtec" survey of the Infratest Market Research Institute.

#### Strategy: The Counters of the Telecommunications People

The displacement strategy of computer vendors who are strong in marketing and experienced in applications hits the telecommunications and office machine specialists at their generally unprotected data flank and forces them to take risks on the opponents terrain. Companies such as for instance SEL and Telephone Construction and Standard Time (TN), have an established status in telephone communications. Nevertheless even such companies are hastily supplementing their product spectrum by intelligent data terminals, are designing network concepts for the linkage of various computers, and are giving thought to complete application solutions.

If anyone does not feel up to this elimination contest of everyone against everyone else, he has only three alternatives, by no means pleasant ones: leaning on a strong partner, concentration on component deliveries to system vendors (OEM business) - or giving up.



Enterprises which already stand on the two supports of communications engineering and data technology are countering by organizationally bunching their forces for the terminals market - for example Siemens in the business area K which was newly formed on 1 April 1984 and which is managed by Dr. Claus Kessler. L. M. Ericsson already drew similar consequences previously in its German business, and Philips Company, which welded together the Philips Communications Industry (PKI) from three German subsidiaries did likewise. The laborious integration work, extending over 2 years, has paid off by PKI chief Dr. Gert Lorenz and his management crew: In 1983 he achieved record results (see also the interview on Page 17).

On the other hand, the Bosch Group is only at the very beginning of integration in telecommunications. Indeed, in the eyes of Bosch business manager Kurt Schips, the parent company, the subsidiaries TN and Blaupunkt, as well as the 40-percent-owned ANT, "are covering the essential areas." Advanced development is also being coordinated. However, on the market the Bosch family scarcely makes a joint appearance at exhibitions and in terms of major contracts, except for a new glossy brochure.

For example, TN and Blaupunkt GmbH, which brings to bear experience with television monitors and display screen text, are jointly developing integrated communications stations. External specialists are being deployed for the user software. Which of the two companies will later on market the systems "has not yet been determined" according to Schips.

The Telematic Association with Mannesmann is largely still a piece of paper - apart from the joint venture ANT. Considerations concerning the possibilities of collaboration with the Mannesmann subsidiary Kienzle and the AEG spinoff Olympia Works AG, in which Bosch has indirect interest, "is still in its initial stages." Nevertheless, already today TN is selling electronic typewriters from Olympia under its own label as a teletex station.

In the public network business, the Bosch-Mannesmann structure can keep international pace only in transmission technology (ANT). ANT is the only German enterprise which builds radio relays for installation in satellites and not only receiving stations on the ground. In the much more significant business with digital local and remote transmission stations, TN - just like DeTeWe - is clinging to the Siemens coattails as junior development partner of the EWSD system.

As regards the world market in transmission, outside the U.S.A. and Japan, besides the Munich giant, at this time only the ITT subsidiary SEL, with its system 12, is in the running among the German enterprises. It profits from the strong international presence of the ITT conglomerate. Its severest competitor at this time is Ericsson. The French equipment has indeed been technically superseded, but the wind is at their back in the market because of their previous colonies and massive government support. On the other hand, the British system X is still suffering from childhood diseases.



## Public Networks: No Danger Yet From AT&T

The Philips conglomerate has fallen back. Only a few years ago it was celebrating export successes with its analog systems, but did not manage the curve to digital technology. Thus, the German subsidiary PKI had to trim its sails with respect to Siemens and SEL in the post office's invitation to bid on digital transmission systems.

With just 2 percent of the telecommunications world market, the Dutch electrical giant is too weak to be able to recover again the mighty development costs for digital transmission. "For this, about 8 percent of the world market is necessary," according to telecommunications consultant Ross from A. D. Little. Only AT&T, ITT and - just barely - Siemens can manage this. The Japanese can also keep pace, because they profit from a line of development.

The national pathwork is the crux of the Europeans: Going it alone requires mighty software accomplishments in transmission technology, so that the scarce software engineers are lacking in the terminals business with office automation. Already today, the European telecommunications manufacturers, with sales per employee of 45,000 dollars, lagged far behind the Japanese competition (100,000 dollars), and the U.S. competition (80,000 dollars).

For this reason, Philips has sought out AT&T as a partner, in order to gain back the lost terrain in the office business. Philips offers the U.S. colossus, which previously was fixed in the domestic market, its international marketing contacts, and in return for this it obtains access to the know-how of Bell Laboratories.

Technical people like Ross on the other hand calculate that the joint subsidiary APT, "will not become a danger to the competition before the end of this decade." The reasons for this are as follows:

Because of the basically different network requirements, structures, and standards in the U.S.A., the technology must first be adapted to the remainder of the world; inversely this is also the greatest obstacle for European vendors on the U.S. market.

Both enterprises have other top-management priorities and therefore cannot pay sufficient attention to the joint telephone business: AT&T is losing ground at home, the split up of Bell Laboratories among the business areas causes innovation-inhibiting jealousies. Philips must defend itself against the Japanese in its main business, consumer electronics.

Both companies still have weaknesses in the marketing of telecommunication units.

The danger for the established German postal vendors already earlier on comes from quite a different corner: The computer manufacturers are in fact

trying to get a foothold in public network technology, through the backdoor, via pilot projects of the post office for new services and technology. Thus they are settling in niches which today are still on the margin but which can grow into important markets from a longer term perspective:

- computer systems for so-called Value-Added Networks (VAN) and

- broad band systems which also permit the transmission of movies, for example picture telephones, and rapid data transmission.

Value-Added Networks additionally offer services which require the use of tailor-made EDP hardware and software:

- memory and forwarding services (store and forward), such as for example electronic mailboxes for texts, data, and even speech;

- computer processing per telephone network;

- interface matching between terminals and computers of different type by EDP systems which translate from one operating system to another.

IBM Germany, for example, has selected the supplementary service of display screen text (Btx) as its entry gate. The Stuttgart people are indeed paying a heavy tuition because they garnered the post office' contract for Btx centrals with a technically demanding concept, but one in which the detail problems have been underestimated. But the investment is paying off: IBM gained not only network knowledge and know-how in interface matching but also "has the marketing rights for the system," according to the responsible IBM business manager Karl Edmund Michel. On the other side of the Atlantic, these are being used for the first time: There the number one in computers, together the retail giant Sears Roebuck and the television company CBS, would itself like to nurture a Btx-like network.

Nixdorf is ogling broad-band networks which will improve intra-business communication already during the next few years. During the nineties, these will supplement and replace the copper cable network of the post office, first of all for business communications.

The path leads via cable television pilot projects in Ludwigshafen and Munich. For this purpose, the people in Paderborn, together with the antenna manufacturers Fuba and Kathreiner, developed control systems for pay TV. But these can be utilized in principle for all possible broad-band services. Again together with Fuba, Nixdorf also delivers so-called broad-band coupling fields for video conferences in the Bigfon experiments of the post office.

But when the big broad-band business will begin, together with the associated extension station systems and picture telephones, depends on the network strategy of the post office. One thing is clear: The growth engine of the next years will be ISDN - the integrated digital service network. Voice,

text, data, and picture traffic will run over one communication receptacle at the subscriber's. Here the German network constructors and terminal manufacturers, whether they build telephones or computers, have a good opportunity in the world market, due to the vanguard role of the post office.

The two potential main competitors are handicapped: In the U.S.A., parallel networks are multiplying for the various services. The SEL manager Roland Mecklinger knows that "in Japan a digital telephone network does not yet exist, and the necessary software to construct it must still be written." He also does not fear the announced massive Japanese billion-dollar investments in wide-area glass-fiber broad-band networks, with which the island state is frightening the telecommunications world. "Who is going to pay for this? Not even Tenno believes in the ambitious plans."

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GOVERNMENT, RTE REPORTEDLY 'BUNGLE' SATELLITE MOVE

Dublin THE SUNDAY PRESS in English 9 Sep 84 p 8

[Text] The attempts of the Irish government and of RTE to interest foreign broadcasting bodies and international corporations in the Irish satellite project have been subject to growing criticism both at home and in Britain.

A seminar organised by RTE earlier this year to stimulate cooperation between the national broadcasting bodies of Ireland, Britain, Spain and Portugal has been described as 'a complete shambles' by one of the participants. Meanwhile the 'deafening silence' from the Department of Communications in Dublin since applications were presented at the end of July is seen as typical of the department's mishandling of the project.

Following the World Administrative Radio Conference in 1977, when orbital positions were allocated to all member countries, including Ireland, governments have geared up to getting Direct Broadcasting Satellites (DBS) into space.

Towards the end of last year Jim Mitchell's department of Communications invited some 39 organisations to tender for the project. Twenty-seven expressed an interest, 9 presented outline applications but only four have definitely submitted final proposals. These are Westsat, a consortium comprising RTE, Telecom Eireann, AIB, and Guinness Peat Aviation, Atlantic Satellites, a group comprising Jim Stafford and the US Hughes Communications, Tony O'Reilly's Independent Newspapers group and the leading British consortium UNISAT.

The small number presenting final applications is believed to be a disappointment to the government. Industry sources in Britain explain, however, that the department's procedures did nothing to encourage enthusiasm in the project. For a start, shortly after seeking tenders, the department circulated a list of all interested parties. This came as an embarrassment to a number of companies who wished to keep their involvement from their competitors and were expecting confidentiality.

It is quite possible, in the highly fluid developments in the international satellite business, that British and Irish interests will come together again to share the enormous cost of putting up a DBS satellite. But at present, there is real regret in Britain, among manufacturers and television companies that the first round of Anglo-Irish contacts went adrift.

# AGENCIES TO COOPERATE IN HIGH-TECHNOLOGY SERVICES

Oslo AFTENPOSTEN in Norwegian 24 Sep 84 p 30

[Article by Ulf Peter Hellström: "Postal Service and Telecommunications Agency Will Cooperate"]

[Text] The top management of the Postal Service and Telecommunications Agency have, from what AFTENPOSTEN has learned, voted to establish three cooperation panels which are to study the possibilities of joint drives within new electronic services into the 1980's. This includes data teleprocessing services, electronic mail and electronic payment systems. The two big State services—which together employ almost 50,000 people—want, among other things, to promote technical standards with breakthrough power in the future information society.

It is the general directors of the two services together with the board chairmen who have been central in the preparations for cooperation regarding electronic services. The Ministry of Transport and Communications has now been informed of the cooperation.

For a rather long time there has been informal contact between the services regarding cooperation in those new fields which are in the process of undermining the services' traditional monopolies. Cooperation between the two services is also in accordance with wishes expressed from political quarters. For example, a Conservative committee under the chairmanship of former Minister of Transport and Communications Håkon Kyllingmark earlier this year advocated such cooperation, among other things as an element in making the Postal Service more efficient.

According to the plan, the three cooperation panels are to come with their proposals during the fall of next year or early in 1986. The panels will, among other things, see to it that the State services do not land on different technical solutions when the new electronic services get under way as time goes by. It is also the intention that as simple forms of payment systems as possible be worked toward.

The new forms of payment cards are to be standardized, whether they will be payment cards with built-in microprocessors or not.



In individual areas it is necessary for the two services to coordinate activities, because they have already come into competition with one another. For example, the Telecommunications Agency's new Telex service is an electronic mail service which is competing with the traditional business letters which the Postal Service distributes.

The Postal Service and the Telecommunications Agency are, incidentally, already cooperating together with several other organizations and private banks and the business world in the so-called Telebank project in Lillestrøm, where consumers are using payment cards with a built-in memory for paying for shop purchases and other things.

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# RESEARCHERS INTRODUCE NEW DIGITAL TELENET SYSTEM

Oslo AFTENPOSTEN in Norwegian 27 Sep 84 p 5

[Article by Øystein Grue: "New Method Developed at Telecommunications Agency Research Institute: Makes Video Telephone Less Expensive"]

[Text] Researchers at the Telecommunications Agency Research Institute (TF) in Kjeller have now developed methods which in the future digital telecommunications system will drastically be able to reduce the cost of transmitting TV pictures. While the transmission of live pictures--such as we know it through ordinary TV--will occupy about 1000 telephone lines, the Telecommunications Agency's newly developed method for transmitting live pictures will cost only a few "message units" more than an ordinary telephone.

The use of a video telephone will be able to become quite a bit less expensive with the newly developed method of transmission.

"The main reason for the fact that the live picture service has not had any success for so long is clearly the fact that the cost has been too high," Researcher Gisle Bjøntegaard reports. He headed the project for the development of new equipment for a video telephone service--so-called video telephone or video conferencing.

"It costs to occupy about 1000 telephone lines in order to transmit live pictures in connection with telephone sound transmission."

The key has thus been to lower these costs. Methods of compressing TV signals are based on advanced digital equipment. First-generation encoding equipment is already now on the market, which compresses a TV picture down to 30 telephone lines, with somewhat reduced picture quality. This equipment costs one half to one million kroner and is used for video conferencing. The cost of transmitting, for example, a one-hour video conference via the ECS satellite will still be 5000 to 10,000 kroner. It goes without saying that at such prices a service will not become very widespread, Gisle Bjøntegaard says.

The methods which are now being developed at the Telecommunications Agency Research Institute are far more advanced, while at the same time they make possible less expensive production of equipment.

In small series, i.e., a few thousand, the production cost of such equipment will be about 50,000 to 100,000 kroner, whereas in mass production it would be possible to get the price down to the level of a TV set, the researchers believe.

In order to maintain picture quality with such a "contracted" TV signal, use is made of the eye's properties under various conditions. When there is little motion in the picture--as when a person is sitting and talking--there is little new information which must be transmitted, and the picture's sharpness can for this reason be maintained. On the other hand, when there is a lot of motion, the compressed TV signal is not able to transmit pictures with full sharpness, but this is also not necessary, inasmuch as the eye nevertheless does not pick up very many details in a motion situation, Gisle Bjøntegaard explains.

It is primarily business which is displaying interest in the possibilities of video telephone. Video conferences in which it will be possible to display illustrations or documents and submit these to the other side in a conference via video telephone will in not too long a time become a reality.

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# DOMESTIC FIRM LANDS LARGE ORDER FOR PHONE EXCHANGES

Oslo AFTENPOSTEN in Norwegian 29 Sep 84 p 12

[Article by Ulf Peter Hellström: "EB Gets Major Contract for Telephone Exchanges: Guarantees 90 Jobs"]

[Text] Elektrisk Bureau (EB) will, from what AFTENPOSTEN has learned, receive a considerable contract with the Telecommunications Agency for supplying digital telephone exchanges intended for small and medium-size concerns. It is the service's top management which is suggesting this to the Telecommunications Agency's board of directors, which will make the formal decision on Monday. The contract will probably have an annual value of 50 to 100 million kroner and provide a basis for between 70 and 90 jobs.

Orders from the Telecommunications Agency will, for one thing, remedy the employment problems at EB's production plant in Hisøy near Arendal, which has been Aust-Agder's biggest industrial employer.

The framework contract with the Telecommunications Agency was the subject of an international bidding competition in which 16 suppliers of digital inter-office exchanges sent in bids. It is seldom that this type of bidding competition is opened to foreign suppliers, and the Telecommunications Agency's decisions have for this reason been awaited with suspense also among concerns and telecommunications services abroad.

The framework contract with the Telecommunications Agency concerns digital inter-office exchanges which can serve between 20 and 200 telephone lines internally in a concern. The Telecommunications Agency has for a rather long time been on the lookout for more modern and adequate equipment in this market, which above all aims at the thousands of small and medium-size concerns which dominate the concern structure in Norwegian business. The Telecommunications Agency's present products no longer cover customers' demands.

All the traditional suppliers of telecommunications technology in the world today are among the 16 suppliers which submitted bids.

As we know, EB lost the tug-of-war with STK [Standard Telephone and Cable Factory] last year for the big contract with the Telecommunications Agency for supplying the digital public telephone exchanges which are to tie the future modern

telecommunications network together. The employment problems at the production plant in Hisø, which today produces conventional telephone exchanges and circuit boards, arose after this. It had been hinted that the number of jobs at the plant would have to be reduced from nearly 700 last year to 100 to 200 if the State did not step in. Up to now this year the work force has been reduced by 70 men. An EB contract with the Telecommunications Agency will, however, guarantee some jobs in this local community, at the same time as the concern begins the production of the type of digital equipment which will dominate the future's telecommunications.

EB's inter-office exchange goes by the name "Fox" and has been mainly developed in Norway. The company is already exporting it to Japan and other countries. A contract with the Telecommunications Agency in Norway will be able to provide a basis for increased exports.

The Telecommunications Agency today has a monopoly on the sale of telephone exchanges to concerns, but this situation can be changed if the Storting follows the Telecommunications Committee's "telematics" recommendation and lets others get a chance at this market. It is this factor, as well as the desire of concerns to invest in new inter-office exchanges, which makes the estimates for the framework contract somewhat uncertain.

Also, the Drammen area will get a smaller number of new jobs as a result of the EB contract, for the Eltek firm has recently signed a considerable agreement with EB regarding subcontracts for power supply equipment for EB's inter-office exchanges.

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TELECOMMUNICATIONS TECHNOLOGY CALLED AT POINT OF COLLAPSE

London THE DAILY TELEGRAPH in English 3 Sep 84 p 13

[Article by Roland Gribben: "Information Technology 'In Danger'"]

[Text] Britain's information technology industry is in danger of collapse and becoming dependent on imported products and technology, according to a report on the "crisis" facing the sector, published yesterday.

The industry in the United States and Japan is growing much faster, and British firms are rapidly losing their share of home and export orders in one of the "industries of tomorrow."

The report, published by the National Economic Development Office, shows that the industry is dangerously near the threshold of losing its independence and the authors call for a new partnership between Government and industry to prevent foreign domination.

Information technology is largely centred on two key sectors, computers and telecommunications, but covers the process and transmission of a wide variety of information from audio to video, text and graphics.

Sales last year were worth almost L5 billion but imports accounted for 54 percent of the total and the trade imbalance reached L800 million while Britain's share of the world market has fallen to five percent from nine percent in 1970.

Prof. John Ashworth, Vice-Chancellor of Salford University, a former member of the disbanded Government "think tank" and chairman of the committee which produced the report, said: "In this new industrial revolution there isn't a single top British company in the top 10.

"We are talking about a sunrise industry being eclipsed even before it has properly risen."

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## BRIEFS

NEC EXPANSION--A L75-million expansion to a Scottish microchip factory with the creation of 450 jobs was announced yesterday by Nippon Electric of Japan. The expansion reinforces Scotland's role as Europe's main microchip centre and the main location for foreign electronics investment. The investment at Livingston New Town, West Lothian will increase the work force to 650 and the investment to L90 million. Recruitment starts next year and production in 1986. The amount of investment in high technology, mainly by foreign companies, north of the border over the last three years is now more than L1 billion. Mr Younger, Scottish Secretary, welcomed the project and said: "Scotland is now established as one of the most significant electronics centres in Europe, if not the world." The bigger plant will be able to process six million microchips a month, each capable of containing 256,000 bits of information and will be able to produce the "megabit chip" with a million pieces. The success of the first phase of the investment, involving spending L15 million and the creation of 200 jobs, influenced NEC in pushing ahead with the major expansion. [By Roland Gribben] [Text] [London THE DAILY TELEGRAPH in English 18 Sep 84 p 1]

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